

"BLACK" JACK TURNED ON TUNGSTEN ORES

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enced mining engineer, and W. W. Elliott, who has superintended the installation of more than 100 mills in the southwest, had their attention drawn to the Tip Top. They soon realized its tungsten possibilities. On the dumps they found 20,000 tons of ore which, at the present prices of tungsten and silver, is worth nearly \$25 a ton. The steps are filled with an equal tonnage of ore—it was waste when it was thrown in—that runs just a little higher. Above the 200-foot level the miners left in place, because it was low in silver and high in tungsten, 1000 tons worth above \$70.

The shaft is down 330 feet but is filled with water to the 200-foot level. At that point it is tapped by a tunnel 1100 feet long. Between the shaft and tunnel mouth is the mine's principal ore shoot, which is 600 feet long and more than two feet wide. This shoot has been stopeed all the way to the surface, with the exception of several great blocks that would not pay for mining under conditions then prevailing.

While Muter and Elliott were drawing the "waste" out of this stope and exploring it as best they could, Napoleon Waldemeyer, who was a shift boss at the Tip Top in Hagen & Tevis days and later under the St. Louis-Yavapai company, happened along. He told them that if they would draw the stope in a certain place they would find a big block of rich ore. They did so, and the ore was there. Other information that Waldemeyer gave them about the condition of the mine above the 200 was checked up and found to be correct. He has told them to other big bodies in the lower levels. Other miners employed at the Tip Top in the days of its former glory, bear out his statements. Waldemeyer is now superintendent of the mine.

The old mill was put in shape by Muter and Elliott to make test runs. They milled 63 tons of samples, not any of which carried less than five pounds of tungsten to the ton, and marketed nearly \$2500 worth of concentrates. Much of the machinery of the mill can be utilized in the new reduction plant, which is to be placed at the Tip Top.

With Carroll W. Davis, of Prescott, Muter and Elliott bought out the Waldemeyer brothers. Since then the Tip Top Consolidated Mining company has been formed to work the property.

Mr. Davis is president, and F. L. Hawthorth, also of Prescott, is secretary. The capitalization is only \$75,000, which is regarded as low by view of the ore in sight.

The company's plan of operation is to unwater the workings and ascertain what ore is available before deciding what kind of a mill to install. It is possible that enough high grade ore will be found to pay the cost of the plant.

To unwater the workings will cost about \$5,000. Once they are dry it will cost little to keep them so, as the mine does not make much water.

The property of the Tip Top Consolidated company consists of nine claims, millsite, power site and water right. The power site is about a mile and a half down Cottonwood canyon from the mine. A ditch was dug by the St. Louis-Yavapai company to convey sixty inches of water from Boulder creek to Cottonwood canyon, where it will fall perpendicularly 145 feet. This is capable of generating 190 horsepower and the flow of sixty inches will be available eight months of the year. At small cost a storage dam can be constructed and the flow made constant.

Tip Top appears to be the center of a tungsten region. Tungsten has been found in all directions, within a radius of three or four miles. Tule creek, along which hundreds of locations have been made, is only three miles away. Large shipments of high grade ore have been made from George Thompson's Tule creek mine. There is talk of a custom concentrator being erected there. Prospectors are in every draw, on every hill, searching eagerly for the black streaks and splashes that betray the presence of tungsten.

An Indian herder named Butler chanced to see some tungsten ore in the hands of a prospector. He said that he knew where there was plenty more like it. The Indian proved his statement. He took W. J. Martin, prospector of Canyon station, to a point about two miles east of Tip Top, where there was a big granite blowout. In the granite lay the tungsten. Martin and Butler have shipped 300 sacks of twenty percent ore. On another

claim nearby they have a promising showing of antimony.

Like every old camp, Tip Top has its traditional lost mine. It is related that in the early days a prospector appeared frequently at Tip Top, traded rich silver ore for provisions and whisky, and disappeared. All efforts to follow him to his mine proved fruitless.

A few days ago Joe Fuller noticed a spot on a hillside, about a mile and a half east of Tip Top, that looked peculiar. He began to dig and soon broke into an old tunnel that exposes a bold silver showing.

When the Black canyon road, between Prescott and Phoenix, is put in shape, Turkey station, on the Bradshaw mountain railroad, will be the supply point for Tip Top and the eastern part of the tungsten country. Steps to repair the road are already being taken by the Yavapai county supervisors. Phoenix is now the nearest rail road point that can be reached from Tip Top but there is a good road from Tule creek to Peoria.

COMMONWEALTH EXTENSION COMING

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has had anything to do with the property is pinned on this work. The work will be started straight south. It is hoped and many indications point to a successful conclusion, that the contact vein, expected to be reached from 300 to 400 feet will uncover a great body of ore.

This work will take the drift immediately under an old shaft, sunk many years ago by John Pearce and from which he took out ore that ran as high as \$1 a pound. This shaft is down 160 feet and the ore indications are wonderful. The company's prospective future plans contemplate driving drifts far into the southern part of the property, under the flat, south and east of the hill. Many mining men have declared a fissure vein to lie under the flat and to carry and to carry more than 1000 tons of ore. Only development will prove these golden promises, however.

At the present time the extension dump has about 1,000 tons of a fine good grade of milling ore. Some of the samples are high grade and the horn silver can be found in considerable amounts. The Commonwealth Mining and Milling Company has offered to handle this ore if it can be taken to the sampler and crusher. On account of the crusher being far up on the side of the hill it will be exceedingly difficult for this transportation to be made. The officials of the company are making every effort to transport the ore, however, and it will undoubtedly be followed to a successful conclusion.

A solution to the transportation problem is seen in the work now being done by the Commonwealth people in exploring their south ground. They are pushing this drift and in time it will be connected with the workings of their shaft, a matter of some hundreds of feet. This will enable the Extension people to transport their ore underground, through the Commonwealth drifts, up their shafts and to the mill. Only the waste will be handled through the Rainbow shaft in such a case.

The matter of sinking the shaft another one hundred or so feet is being considered. Development of the 220 level, for determination purposes, will be prosecuted first. The shaft is now to the water level and more sinking would necessitate pumping operations.

The personnel of the officials and directors includes some of the best known men in southern Arizona. The property is owned largely in Bisbee, local business people and miners being heavily interested. Charles F. Hicks is president, P. H. Fitzpatrick, secretary and Gus Hickey, treasurer. Jno. Metcalf is in charge of the mining operations. Metcalf worked in the old Commonwealth and has had much experience as mine foreman in Mexican silver properties. The stockholders and directors can feel assured that their mining interests are in excellent and capable hands when the present officers are in charge.

Summary: The Extension is still a prospect; but a prospect where consistent effort, the expenditure of money and the following up of excellent indications, will undoubtedly develop a mine. Ore taken from the 220 level, in a comparatively small working, has demonstrated the fact

that rich silver is in the neighborhood. It is a high grade milling tonnage. Extension is one of the best gambles in the entire state of Arizona.

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IMPROVED MINING IS AID TO CONSERVATISM

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to the so-called Ohio system of mining as improved and developed by Mr. McDonald at Inspiration. Through these efforts the unit cost of mining has been tremendously decreased and we have been enabled to mine exceeding low-grade material and convert it from uncommercial rock into commercial ore.

In connection with beneficiation it has been necessary to cheapen greatly the unit costs and at the same time it increased largely the metallurgical recovery. The fact that the leaner copper ores mostly occur in enormous tonnage warrants large capital expenditures and the construction of the most economical and highest class of power plants, dressing works and reduction works.

Flotation has proved to have a tremendously important bearing on the increased recovery of copper from sulphide ores, and it would appear that within reasonable limits the percentage of recovery from the sulphide remains constant, even if, through a cheap mining method, the ore is necessarily mixed with a proportion of overburden that is valueless. In other words, it seems practicable with cheap power and very fine grinding and the use of flotation to dress highly lean copper ore and make a recovery of 90 percent or over of the copper existing as sulphide in the ore whether the ore contain 2 percent or 1 percent of copper. In using the term flotation I mean, of course, that simple and modified methods of gravity concentration are used in conjunction with it. If the sulphide material is finely disseminated and the ratio of concentration is high; while the gravity methods somewhat simplified remain the major process, and flotation simply supplements it where there is some coarse sulphide and the ratio of concentration is low.

With reference to the reduction of the copper concentrates and copper ores there has been notable improvement in the increased size of the furnaces; the use of fuel oil or powdered coal in reverberatory furnaces; the introduction of static-electric methods for avoiding dust losses; the introduction of basic lining in copper converting and improving in refining. I should say, however, that the advance made in smelting and refining processes in no way compares in importance to the advance made in mining lean ores and dressing them preparatory to smelting.

Another subject that we are all interested in is the treatment of lean oxidized copper ores by leaching, and electrical precipitation of the copper with a partial regeneration of the acid consumed, and while commercial plants of large size are only beginning to be installed, the outlook for the profitable recovery of copper from lean carbonate and silicate ores hitherto valueless is exceedingly promising. At the present time, under most advantageous conditions, I have no hesitation in saying that 1-1-4, and possibly 1 percent, sulphide copper ore having a high ratio of concentration can be developed and mined by underground methods and beneficiated at a profit, and that the same statement will probably apply in the near future to oxidized copper ore in the form of carbonate and silicates; and just as such ore was uncommercial and worth less 10 years ago, so I believe similar ores containing but 0.6 or 0.7 percent copper will become commercial in the next decade.

My theme, therefore, is that in the conservation of our resources, we must remember that organized investigation and study of mining and metallurgical processes play a tremendously important part, for if we can bring to a point of commercial use leaner and leaner ores, so can we greatly extend, almost indefinitely, the life of our mineral industry. We should also remember that so-called waste products such as slags, tailings, etc., containing small quantities of metals, but now unprofitable, may in turn become exceedingly profitable. They should therefore be stored and held for future use.

From the view point of conservation we must recognize that an organized struggle to increase our profitable reserves through decreased unit costs and improvements in process and consequent higher recoveries presupposes the accurate collection and tabulation into useful form of an immense amount of detail in both investigation and operation.

The great improvements made and those still to be attained can only come with accurate knowledge, not only of costs, but of grades and recoveries. To attain better results we must have complete knowledge of what we are doing at the present time. In almost all metallurgical statements there is an item called "unaccountable loss." As a matter of fact we should not recognize any such thing as an "unaccountable loss." We should only recognize that owing to imperfect methods there is a loss for which we have not accounted.

It is true that in well-developed mining organizations the principles I have outlined are recognized, but I think in the Pan American congress, where countries are involved whose mining industry is in its infancy, attention should be brought to these principles of conservation, for we all know that in the early history of mining in this country the loss to the world through the waste of ore underground and of half-treated products has been enormous.

SUMMER HOLDS NO FEARS FOR OATMAN

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are alone receiving attention from mining operators and capitalists. Investigation by them is resulting in a healthy growth in the interest in the Cedar Valley, Maynard, Peacock, Weaver, Gold Basin and, in fact, all of the districts of the county. In each and all of them there is greater activity than there has been at any time in the previous history of the Southwest and splendid results are being obtained; therefore, the prediction is warranted that Mohave County, as a whole, is entering an era of mining activity and prosperity of an enduring character.

The multiplicity of mining companies throughout the county precludes the giving of many details of developments in limited newspaper space. In the Oatman field the now famous United Eastern mine continues the "big" center of interest, in consequence of the steady improvement in the physical condition of the property. There seems to be no limits to its storehouse of wealth, despite the fact that operations have reached a depth of 665 ft. The efforts of the management are being largely confined to that level and the results being obtained show a marked improvement in the value of the ore being disclosed. For some time past the north drift being extended in the ore body all of which constitutes an immense deposit of highly profitable commercial material has been yielding high grade values for a greater area than found on the upper levels. For more than 100 feet the face of the drift, which has a total length of approximately 250 feet, has been yielding assays averaging better than \$100 per ton. Sinking operations in the new main working shaft, down now about 100 feet and designed to go to the 800-foot point, and the grading of the site for a mill, are going steadily ahead.

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YAVAPAI MINES RIVAL THOSE OF OATMAN

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cent of tungsten. The group is located in proximity to that of Wood and partners, and shows the same character of ore. The buyers state that extensive development work is to start early this month, and that a reduction plant will be established at the mine. The plant will consist of a crusher, rolls and jig, the recognized process for treating the tungsten ores of the Eureka district.

Harvey Boone, George S. Mills and C. L. Korvig, of Victor, Colorado, have conveyed the Eureka District with the object of making tungsten. They state that the worth of the tungsten areas of Yavapai county is becoming known throughout Colorado, and that other outfits from there are preparing to enter the tungsten fields of this section. They state also that Yavapai county mining propositions in general are attracting the notice of Colorado mining men, and are of the opinion that Colorado capital in considerable amount will in due course be invested in the mines here.

Five Car Shipment.

Five cars, loaded with concentrates from the property of the Major mining company at Walker, went for ward a few days ago to the Humboldt Smelter. The consignment represented a short run at the Palmdale mill, made for the purpose of testing values and ascertaining the process best suited for the reduction of the concentrates, and those of the Eureka to general. It has been decided to install a flotation plant at the mine, having a daily capacity of 100 tons daily. Representatives of the company are en route here from the East.

A transmission line is being run from Walker to the mine and will be in operation within 30

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Eat less meat if you feel backachy or Bladder troubles you—Salts is fine for Kidneys.

Meat forms uric acid which excites and overworks the kidneys in their efforts to filter it from the system. Regular eaters of meat must flush the kidneys occasionally. You must relieve them like you relieve your bowels; removing all the acids, waste and poison, also you feel a dull misery in the kidney region, sharp pains in the back or sick headache, dizziness, your stomach sour, tongue is coated and when the weather is bad you have rheumatic twinges. The urine is cloudy, full of sediment; the channels often get irritated, obliging you to get up two or three times during the night.

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There are vast numbers of men and women who, immediately upon arising in the morning, drink a glass of real hot water with a teaspoonful of limestone phosphate in it. This is a very excellent health measure. It is intended to flush the stomach, liver, kidneys and the thirty feet of intestines of the previous day's waste, sour bile and indigestible material left over in the body which, if not eliminated every day, become food for the millions of bacteria which infest the bowels, the quick result is poisons and toxins which are then absorbed into the blood causing headache, bilious attacks, foul breath, bad taste, colds, stomach trouble, kidney misery, sleeplessness, impure blood and all sorts of ailments.

People who feel good one day and badly the next, but who simply can not get feeling right are urged to obtain a quarter pound of limestone phosphate at the drug store. This will cost very little but is sufficient to make anyone a real crank on the subject of internal sanitation.

Just as soap and hot water act on the skin, cleansing, sweetening and freshening, so limestone phosphate and hot water act on the stomach, liver, kidneys and bowels. It is vastly more important to bathe on the inside than on the outside, because the skin pores do not absorb impurities into the blood, while the bowels pore do. (Advertisement.)

The distance between the two points is about four miles. The intervening country being dotted with mines which are likewise to be supplied with electric power by the same medium. The contract with the Big Pine property is being operated by Minnesota mining men who are said to be well supplied with funds for development purposes. A mill is being installed and the mine placed in condition for immediate and abundant production.

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